LINGUISTICS, PURE AND APPLIED

by Paul Christophersen

One hears and sees the word linguistics so often nowadays that it is hard to imagine that there was a time, not all that long ago in fact, when it was not very commonly used.

The word was used in continental European languages a good deal earlier than in English. I remember being consulted in Denmark in the early 1930s about what word to use in English for the scientific study of language, because linguistics seemed to be rather a rare word. Philology was what the study of language was most often called in the English-speaking world up to the late 1930s. In 1938 a writer in the Year's Work in English Studies had a remark about 'Philology (which scholars tend more and more to call "linguistic science" or "linguistics").' It was thus in the course of the 1930s that linguistics began to be more commonly used among English-speaking scholars. Yet philology has not gone out of use, though many linguists would now make a distinction between the meanings of the two words — but more about this later.

The reason for the introduction of the word linguistics was that a new conception had arisen, a new idea about how language should be studied. In 1916 a book appeared in Paris with the title Cours de linguistique générale. It was allegedly by a Swiss professor of comparative grammar at Geneva, Ferdinand de Saussure, but in actual fact Saussure had been dead for some years when the book appeared. Three of his former students had been so impressed by his lectures that they felt that these ought to be preserved for posterity, and so on the basis of their lecture notes they produced this book. Their judgement regarding its value turned out to be well justified: it has become without doubt the most influential book in this century's linguistic literature.

Now linguistique had been in use in French, side by side with philologie, for a considerable period, and the tendency in French had been to reserve linguistique for work which was specifically concerned with language as such without any reference to cultural or literary values. It was thus a natural choice of a word for the title of Saussure's book. Nevertheless, Saussure managed to give linguistique a rather more specialized meaning by the novel ideas which he expressed about the linguist's work.

Saussure advocated a number of new points of view. The chief one was a distinction between, on the one hand, the historical study of language, the study of how language had developed and been modified from early times to the present day, and, on the other, the study of language as a system of communication existing and functioning at the present day, or at any other particular point in time, a system in which each item, each little detail, is justified not by having developed out of this or that earlier sound or word, but by performing a particular function in the contemporary system. To distinguish the two points

of view, Saussure coined the words dischronic (meaning 'through the ages', historical) and synchronic (meaning 'existing together at any one time').

To Saussure the primary object of linguistic study should be not the 'substance' of language, as he called it, that is, the sounds and words and inflexions—not these, but their relationship to each other, that relationship which constitutes the system of language. Language, Saussure said, is form, not substance. The essential element, in his view, was the abstract structure of the system, the rules which govern the use of the linguistic substance and without which there would be no system of communication.

Saussure's advocacy of the view of language as structure marks the birth of structural linguistics. Like all so-called new ideas it was not completely new, but Saussure was the first to voice it clearly and consistently. Since Saussure's time all linguists, of whatever theoretical persuasion, have been in a sense — and still are structuralists. There is a particular American school of linguists who call themselves 'structuralists'; but their opponents, the adherents of Chomsky's transformational-generative grammar, are also structuralists in the sense that they too are concerned with explaining the workings of the linguistic system, although they explain it in a different way, by a different theory.

Saussure's new ideas were taken up immediately after the war in various centres of linguistic studies on the Continent, especially Paris and Prague and also, a little later, my native Copenhagen, and the term linguistics (or rather linguistique and Linguistik) thus acquired the more specialized meaning that it now has, namely, the study of language as structure. It was mainly in the course of the 1930s, as I have said, that the term came into use in the English-speaking world. It was used by J. R. Firth in Britain and Leonard Bloomfield in America.

With the introduction of the new term and the novel ideas that went with it, the word linguist too acquired a new meaning. It used to mean one who is good at speaking foreign languages, and it still has that meaning, but rather more often, I think, it now means a person who is engaged in studying languages scientifically, whether or not he is able to use them in practice. Some people have attempted to introduce the term linguistician for the latter purpose, which would enable one to say that a linguistician is not necessarily a good linguist, although he ought to be; but the distinction has not caught on.

As I said earlier, the term **philology** has not gone out of use. In the first flush of structuralist fervour it was reserved for those stuffy old fellows who continued to concern themselves with historical investigation, which usually meant the study of old manuscripts, often imperfect and in need of textual emendation. And so philologists are often engaged in textual criticism, in comparing ancient manuscripts and deciding on their relationship and relative value, something which seems completely foreign to a linguist. Philologists will also in many cases be interested in the contents of the texts they study, their cultural and literary value. A philologist will sometimes edit an old manuscript and discuss not only the

condition of the text and its possible emendation, as well as the characteristics of the language of the text, but also its literary significance — again something which seems remote from a linguist's concern.

However, fifty years have gone by since the heady days of the dawn of linguistics. Tempers have cooled and minds have mellowed. The historical study of language, which at first seemed almost anathema to linguists, has not died—fortunately. Reinvigorated by some of Saussure's criticisms it has come back into a fair degree of prominence under the name of historical linguistics. Linguists have even in recent years begun to take an interest in literature in the sense that they have attempted to see a relationship between linguistic theory and literary interpretation. Nevertheless, not much headway has been made so far in this area, and I doubt if it ever will; the two activities are too disparate.

Looking at the situation as it exists now, how should we attempt to define the science of linguistics? There are still people who would say that the only, or at least the primary, concern of linguists is with language as structure and that everything else is peripheral. But a great deal of work — and, I am inclined to think, the most useful work — is being done on the periphery of the subject. A more satisfactory definition of linguistics would be 'the study of language in all its aspects'. By language I mean of course not one particular language, or at any rate not that alone, but language as a general human phenomenon. It is surely a remarkable thing, worth investigating, that by producing curious noises in the throat and mouth, or for that matter curious scribbles on paper or similar material, human beings are able to communicate. Linguistics, then, may be said to comprise all systematic knowledge about language in all its aspects. Language has indeed many aspects and the study of language has many branches and ancillary disciplines, such as anatomy, physiology, neurology, acoustics, psychology and sociology, not to mention political and social history. Some people would hold that phonetics, the study of speech sounds, is a separate science, though related to linguistics, and in recent years the terms psycholinguistics and sociolinguistics have been coined to indicate special areas of investigation, though hardly separate sciences.

The question is sometimes asked: to what group of sciences does linguistics belong? Is it a physical science or a biological or a social science? Linguistics must be said to be primarily a social science — primarily but not entirely, because, as I have just pointed out, linguistics spans a wide range of different divisions including such fringe areas as the physical and acoustic properties of speech sounds and the neurological aspect of speech production and perception. But most branches of linguistics, whether it be psycholinguistics or sociolinguistics or writing systems or semantic analysis, are in some way concerned with language as a medium of communication, as an activity engaged in by people living together as a community.

As I said before, there are still people who hold that the main concern of linguists should be with language as structure, with devising a theory — a model, as the term goes nowadays — which will explain the linguistic relationships known to us, the linguistic system. Indeed the line of division seems no longer to be between old-fashioned philologists and up-to-date structural linguists. The main

cleavage, nowadays, seems to me to be between those linguists who are mainly theory-oriented, whatever their particular theory may be, and those who are primarily interested in collecting data. The American linguist Einar Haugen calls them, respectively, Procrusteans and Heracleans. I should like to quote part of what he says, omitting some of his references to particular scholars: 'Procrusteans take delight in devising models and theories. If a bit of data sticks out here and there, they are not averse to lopping it off in the name of elegance... Bloomfield's behaviorism was such an approach, which compelled him and his followers to exclude data to fit their theories. The corrective furnished by Chomsky's generative approach is in danger of becoming another bed of Procrustes. What used to be called patterns is now called rules, and anything that cannot easily be formalized as a rule is trivial and uninteresting. Who are the Heracleans? They are the followers of Heracles, who had no theory other than that monsters should be liquidated when they appear and that Augean stables should be cleaned when the stench becomes unbearable. They can even gather the manure and make it yield a fertile crop, by putting the data into piles until some kind of pattern emerges.'1

The difference between these two groups is primarily one of temperament, and temperamentally, I have to confess, I am on the side of the Heracleans. I find it regrettable that in the eyes of the world it is the Procrusteans who seem to attract more notice, and not always the best kind of notice, to linguistics. But on either side of the great divide the approach is basically empirical, because even the most high-flown or ill-conceived ideas of linguistic theorists, and Chomsky's ideas are no exception, will ultimately stand or fall by whether they agree with the evidence of our senses. What linguistics is attempting to do is to conduct a rational enquiry into the nature of language; it collects factual data by systematic observation and, wherever possible, by experimentation, and it attempts to establish causal links between the observed facts and, in this manner, to set up a coherent body of knowledge.

Now, disinterested search for knowledge is in many ways an admirable thing. Although there is nothing shameful about searching for short-term material benefits, a clamour from the public or the financing authorities for tangible results has its dangers; it can lead to premature or exaggerated or downright dishonest claims. This is in part what has happened in linguistics. There is a great deal of talk nowadays about 'applied linguistics', a term that I am not happy about for various reasons. It arose in America during or just after the Second World War as a description of practical language teaching on lines designed or approved by linguists, teaching which placed the emphasis on speech and avoided the traditional grammar-and-translation method. So far so good; but some confusion arose because this method was proclaimed with loud fanfares as new and revolutionary, although the same or a very similar approach had been known and practised by many teachers on this side of the Atlantic since the 1880s and 1890s - long before structural linguistics had been thought of. Altogether, European countries, including Britain, have been, and are, ahead of the United States in language teaching — for fairly obvious reasons, since there is greater need for language teaching on this side of the Atlantic and much more opportunity to practise what one has learnt.

It is reported that one reason for the sudden rise of the term 'applied linguistics' in the United States was that American linguists had acquired a bad public image. As one of them, H. A. Gleason, confesses 2 linguists had come to be thought of as conspirators against the English language, against literature, and against all humanistic values. The need that arose in America during the war for intensive foreign-language teaching gave linguists their chance; they seized it and gained due recognition for their effort; and the advocacy of applied linguistics after the war was in part intended to maintain and boost the more favourable image that linguists had begun to acquire. A contributory factor may have been an inclination to look for quick solutions to problems in the form of 'breakthroughs'. 3 Applied linguistics seemed to provide just such a breakthrough, a supposedly new and scientific method which, it was believed, would ensure success in language learning without the usual hard labour and dull drudgery.

I may be a little unfair in saying or implying that there was nothing new in the teaching methods advocated by linguists after the war. But the novelty lay rather in the over-rigorous application of certain ideas which were there before ideas about the grading of teaching materials according to difficulty, and about comparing the 'source' and 'target' languages, as they have come to be called, with a view to finding out where they differ in structure and where consequently, it was thought, the difficulties must lie. Logically, as it seemed to those who were pursuing this line of thought, the next step must be to drill linguistic patterns — or, if one follows a Chomskyan model, to do transformation exercises — and to do this over and over again, almost ad nauseam, often resulting in what a German language teacher has recently described as 'some of the most exceptionally boring and unimaginative courses.'4 The point is that language learning is primarily a psychological process, a fact which linguists are inclined to forget when they offer what they would claim is 'expert' advice on how to teach languages. What the linguist is trained to do is to describe and analyse a language. but it does not follow that he is the best person to advise on how to teach it. I do not mean to imply that Schools of Applied Linguistics have nothing useful to offer the language learner or language teacher, but the value of the courses they provide lies less in their linguistic content than in what they contain of educational psychology and experience. The most tangible practical value of linguistic knowledge is in the sphere of pronunciation, where solid success has been achieved; nevertheless, there is an urgent need to emphasize that linguistics has no magic solution to the problem of teaching languages.

The difficulty about a great deal of 'applied linguistics' has been an over-optimistic belief in the efficacy of certain untried and unproved theoretical positions, linked at times with a curious lack of a sense of reality. One may see in this another example of a Procrustean attitude, to use Haugen's term, an attempt to make the facts fit the theory. As a self-confessed Heraclean I am of course particularly suspicious of Procrustean attitudes, and I should like to mention another example — this time not, or not particularly, from the field of foreign-language teaching.

Gleason says that some Americans in the post-war years came to look upon linguistics as 'a pseudo-science created to justify permissiveness in language'.5

I think I can understand how that idea arose, and I think linguists have largely themselves to blame for it. The point is that linguistics, like other sciences, is neutral in regard to questions of right and wrong. It is not the business of nuclear physicists to allow or prohibit nuclear weapons, though they can tell us how to make them if we decide we want to have them. Nor is it the business of linguists to tell us what is 'correct' or 'incorrect' in matters of usage. Linguists, like other scientists, may advise, but they cannot decide questions of policy. Nothing prevents individual linguists from having views about right and wrong in grammatical usage as in other mundane matters, but they hold those views as human beings and as ordinary users of language and not in their capacity as linguists.

The neutrality of linguistics is not always properly understood, not even by linguists. In their anxiety to emphasize that they are neutral some linguists go to the length of condemning authoritarian attitudes to usage, thus incurring the blame of encouraging permissiveness. Clearly this is just another way of being unneutral. It is customary in linguistic circles to distinguish between so-called prescriptive grammar, as found in books which attempt to lay down the law with regard to correct usage, and the scientific linguist's descriptive grammar, which merely records existing usage. This is undoubtedly a useful distinction: the two types of grammar are quite distinct in their aims, although in the popular mind they are sometimes confused. But there is nearly always an implied sneer in a linguist's use of the term 'prescriptive grammar', and this is unjustified. A prescriptive grammar-book attempts to teach, but questions of teaching, of educational policy, are outside the competence of linguists because education involves many other factors besides specialist knowledge of the subject to be taught.

I am not cavilling: this is an important point. I have no wish to defend pedantic insistence on worthless shibboleths, as found in some grammar-books, but I do maintain that linguists as such have no right to condemn prescriptive grammar, because to do so would involve them in matters of policy. It is their duty as social scientists to study not only usage as they observe it in practice, but also people's ideas about desirable usage, including the existence in some quarters of a desire for authoritarianism. In the great tussle between the forces of authoritarianism and permissiveness, between hawks and doves, linguists may bring their specialist knowledge to bear — they may help, for instance, with experiments to determine whether and to what extent and in what circumstances perscriptive grammar works, as it sometimes seems to do — but they cannot, or should not, as linguists lend their weight to either side, because the issues are much wider than linguistics, involving, among other things, psychology and educational philosophy and practice and, above all, ultimate aims and values.

In the past some linguists, wearing a linguist's hat, have supported what could be described as a degree of permissiveness on the plea that their knowledge of language taught them that man could do nothing to change the course of linguistic history. This position was part of a movement in linguistic thought, mainly in the 1930s and '40s and '50s, which assumed that change was inevitable and beyond man's control. The inevitability of change is still standard linguistic doctrine and is commonly regarded as proved by the facts of linguistic history;

but many would now concede that it is possible in some cases for man to influence the course of linguistic change, in other words to shape and modify a language to fit a particular community's needs. 'Language planning' is now a respectable activity and a legitimate form of applied linguistics. 6 Needless to say, the role of linguists in this kind of work will always be purely advisory.

Some linguists, however, are strangely uncertain with regard to language planning. To take an example from a rather different area: A.C. Baugh, in his important and learned book, A History of the English Language, expresses surprise that 'a number of men notable in various intellectual spheres in the late seventeenth and early eighteenth centuries should have been blind to the testimony of history and believed that by taking thought it would be possible to suspend the processes of growth and decay that characterize a living language'. 7 In Baugh's view these people were just wasting their time, thinking that they could plan and control the development of language. I think I ought to say not 'in Baugh's view' but 'in one of Baugh's views', because within one and the same chapter, he contrives to express mutually contradictory opinions about human interference with language. He dismisses rather airily the efforts of people who are unaware of what he calls 'the futility of trying to interfere with the natural course of linguistic history'; 8 and yet he says that eighteenth-century grammarians, most of whom, he admits, were prescriptive in their attitude to usage, exerted 'a considerable influence, especially through the use of their books in the schools'.9 In fact he enlarges on this influence and says 'we must admit that a considerable number of disputed points, rightly or wrongly, were settled and have since become established" 10 and he gives many examples of such points. But his phrase 'rightly or wrongly' seems to indicate some uneasiness about the matter. My guess is that Baugh, when he wrote his book, was trying to follow a trendy way of thinking among linguists, but was finding it hard to reconcile this view with what he as a scholar knew about the history of the English language. In Haugen's terminology, he was trying to be a Procrustean as well as a Heraclean.

It is not in fact difficult, by widening one's focus a little, to find examples from all parts of the world of large-scale and sometimes fairly successful language planning — in other words deliberate interference with the course of linguistic history. Curiously enough, it is by no means uncommon for one and the same person to sneer at prescriptive grammar because it means interfering with language and yet to engage in foreign-language teaching, although that too would seem to be a form of interference with the natural course of events.

After these strictures on linguistics as practised by some people, let me now adopt a more positive attitude. Obviously linguistics has something to offer the language learner and, in particular, the language teacher, even though it holds no magic key to success.

First of all linguistics may be said to offer a better — in the sense of a truer or sounder — perspective on language. It can help to eradicate popular misconceptions, for instance erroneous ideas about grammatical correctness, or about grammatical differences between languages, or about the relationship (or lack of it) between language and nationality and between language and race. Let me give an illustration.

Randolp Quirk in his book The Use of English has an amusing example of the kind of popular misconception that one sometimes finds expressed in letters to the press:

If other nations wish to borrow or adopt our language it is up to them, but let it be understood that the language remains fundamentally ours.

(Daily Telegraph, 1955.)11

A language is not subject to copyright; there is no kind of ownership of a language which could be justified on either legal or biological grounds. An individual's language is not inherited biologically; it is learnt as he grows up, and many people in fact learn more than one language as they grow up. Language is a form of social behaviour — institutionalized behaviour, as sociologists call it — and it is learnt as part of the socialization process.

Nor is there any copyright in the name of a language; it is a purely conventional and traditional matter. The term English comes from the tribal name of the Angles, who left their continental home in the fifth century A.D. and settled in the Midlands and North of England. Are we to assume that it is only by kind permission of Northerners and Midlanders that a man from the South of England nowadays uses his language? Or rather, I suppose, we should not talk of 'his' language at all, since it seems that he is using a borrowed one. Or take another example. The term French is derived from the Franks, a tribe with a language similar to Old English who invaded ancient Gaul, established themselves as rulers, and gave their name to the country; but eventually they abandoned their original language and adopted that of the population they had conquered. The Franks gave their name to this language, but the language itself was that of the ancient Gauls — or rather: it was not really their language, but the language they had borrowed from the Romans when the latter had invaded Gaul some centuries earlier. And so it goes on: if we go into these matters sufficiently deeply, we shall find that language shifts have occurred so often in the course of human history, and prehistory, that we must all of us here, wherever we come from, be using a borrowed language. In other words, the idea of ownership of a language is absurd.

Perhaps you will say that I am tilting at windmills and that nobody really believes in personal or national ownership of a particular language. This is at variance with my own experience and also, as we saw, with Randolph Quirk's. Another thing that needs correction is the notion that we each of us as individuals have one language, which we acquired in the first four years of life and which will remain in a very special sense ours until we die. We are all inclined, quite instinctively, to distinguish between a person's 'native' language and any 'foreign' languages he may learn, but the theoretical basis for such a classification is doubtful. It may in practice be a useful distinction, which will hold good in the majority of cases, but we must not invest it with a mystique which is unjustified and which only serves to inhibit rational enquiry.

As we all know, some individuals have more than one language in the sense of being at home in more than one. Bilingualism and multilingualism are in

fact much more widespread than is commonly believed, and they seem to be on the increase in this modern world of ours. Now a bilingual person has not necessarily started his two languages at exactly the same time. One may be the language of his childhood home, and the other may not have been learnt until he went to school; and yet the school language will very likely be the one he can handle best later on in life, at least for most purposes. Because, contrary to common belief, a bilingual seldom, if ever, has exactly the same command of both his languages.

A great deal of research has been done on bilingualism, and some of it is relevant to second-language learning, because successful second-language learning leads to bilingualism. I can imagine some people shaking their heads in disbelief at this last remark of mine; yet I am sure I have my feet fairly firmly planted on the ground. What I said just now about the age at which a bilingual person is found to have started the second of his two languages is surely relevant: it shows that a second-learnt language may come to rival or even excel a first. I am not saying that the aim of language courses — here or anywhere else — ought to be native-like proficiency; this is a matter of policy, and, as I have said, a linguist qua linguist should not pronounce on such matters. But he should at least advise the policy-makers about what it is possible or not possible to achieve, and, furthermore, it does not require much understanding of educational psychology to see that if a learner is told that he can never achieve native-like proficiency, he clearly won't; while if he is told that the goal is within his reach, there is a chance that he may reach it, if he is sufficiently highly motivated.

And so we come to the question of motivation. The importance of motivation in educational matters is well known, and its importance is felt no less strongly in second-language learning. The question has been investigated experimentally by the psychologist W. E. Lambert at McGill University in Montreal. 12 He distinguishes various kinds of motivation and finds that the most effective kind for this purpose is what he calls 'integrative' motivation, the desire to gain inside knowledge of the community of target-language speakers, to become as it were, in imagination, a member of their community.

A person who has reached the stage of being able to act as if he were a member of the target-language community has of course acquired not only another language but another culture. This leads me to a further point that needs to be emphasized: the close and inseparable link between language and culture. The observation is an old one. About 200 years before our era, Ennius, the 'father of Roman poetry', is reported to have said that he had three hearts because he had three languages, Greek, Oscan and Latin 13 — and Latin, it appears, was not his first-learnt language. It may be possible, though I am not sure, to learn scientific or technical English without the need to learn any other than purely scientific or technical culture, which is of course to some extent international; but for a general-purpose knowledge of English or any other language some knowledge of the accompanying culture is necessary.

The cultural dimension creates a problem for the learner of a language like English. English is used by a number of different nations, English, Scots, Irish,

American, Australians, etc., each with a feeling of national identity, a feeling of having a culture of its own. This feeling is reflected in various ways in their use of English — mostly subtle ways, you might say, and ways which need not bother the beginner very much; yet relatively soon the learner has to make a choice of what model to follow, especially in his pronunciation. The kind of English that has been subjected to the most careful analysis and description is undoubtedly 'R.P.', B.B.C. English or whatever one chooses to call it, and that fact alone constitutes a strong argument for using this form of English for teaching purposes. Nevertheless, a case could be made, and has indeed been made, 14 for the choice of some other regional form — because even R.P. is regional in the sense that it belongs primarily to England.

There are further varieties within English; there is variation along such axes as the degree of education of the users, or the degree of intimacy between them, or the subject of their conversation. An individual will talk differently to a baby, to an old friend, or to a clergyman. However, these differences, which are ultimately differences in structure, are matters which a learner need not concern himself with for a long time, if ever. I mention them mainly to show what a long way we have come from Saussure's conception of each language as a kind of monolithic structure. There is almost endless variation in a number of ways, but for the learner it is mostly the regional variety that demands a conscious choice.

Finally, I should like to return for a brief moment to what Ennius said about having three hearts. For the majority of people the most they can hope to achieve is a high degree of proficiency in two languages — in other words having two hearts. Now being closely acquainted with two different communities, and having some emotional attachment to each, can give rise to personal difficulties, but it is also, as many people have testified, a source of enrichment in their lives. To a nation it is an enormous asset to have members who know another country well; they act as links not only for the purposes of trade and other material benefits: they can also help to promote international understanding and friendship.

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NOTES

- 1. The Ecology of Language (Stanford University Press, 1972), p. 312.
- 2. Linguistics and English Grammar (Holt, Rinehart and Winston, 1965), p. 24; cf. also p. 49.
- 4. H.—E. Piepho, in A. J. van Essen and J. P. Menting(eds.), The Context of Methodology'. IRAL, vol. 5 (1967), esp. pp. 17—19.
- 4. H.—E. Piepho, in A. J. van Essen and J. P. Menting eds.), The Context of Foreign-Language Teaching (Assen, Netherlands: Van Gorcum & Co., 1975), p. 133.
- 5. Op. cit., p. 23.
- 6. See E. Haugen, Language Conflict and Language Planning (Harvard University Press, 1966); V. Tauli, Introduction to a Theory of Language Planning (University of Uppsala, 1968); and J. A. Fishman, Advances in Language Planning (Mouton, 1974).
- 7. A History of the English Language, 2nd ed. (Routledge and Kegan Paul, 1959), p. 315.
- 8. Op. cit., p. 346.
- 9. Op. cit., p. 331.
- 10. Op. cit., p. 344.
- 11. Randolph Quirk, The Use of English, 2nd ed. (Longmans, 1968), p. 5.
- 12. See e.g. W. E. Lambert et al., 'A study of the roles of attitudes and motivation in second-language learning', in J. A. Fishman (ed.), Readings in the Sociology of Language (Mouton, 1968).
- 13. See P. K. Marshall (ed.), A. Gellii, Noctes Atticae, Vol. II (Oxford University Press, 1968), p. 526.
- 14. See e.g. D. Abercrombie, **Problems and Principles** (Longmans, 1956), chapter 4.